Primer 2:

(SEQ. ID NO: 5) 5'<GT GAT TAA TAA AGC TTC TAA TTC<3'

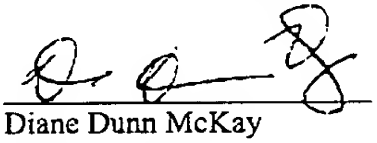
REMARKS

The amendments have been made to comply with the Sequence Listing requirements and no new matter has been entered. A computer readable copy and a paper copy of the Sequence Listing are enclosed. A Verification Statement as required under 37 CFR 1.821(f) attesting that the paper copy is an accurate copy of the computer readable form also has been enclosed.

Applicants believe that the claims would have been allowable as originally filed. Accordingly, applicants assert that no claims have been narrowed within the meaning of the Federal Circuit's recent decision in *Festo Corp. v. Shoketsu Kinzoku Kohyo Kabushiki Co.*, No. 95-1066, 2000 WL 1753646 (Fed. Cir. Nov. 29, 2000).

A prompt and favorable action on the merits is earnestly solicited. It is believed that no fee is required, however, the Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165. The Examiner is invited to contact the undersigned if further information is required.

Respectfully submitted,



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CLEAN COPY OF PARAGRAPHS ON PAGES 4 AND 5

Page 4, paragraph 3:

Accordingly, present invention provides a novel molecule, said molecule being a recombinant protective antigen and useful for anthrax toxin inhibition. The molecule comprises a protein designated as PA-1, wherein the 2β2-2β3 loop comprises of the residues of the amphipathic loop of the homologous iota-b toxin are as given below.

Sequence at 2β2-2β3 loop in native PA:

(SEQ. ID NO: 1) ^{302} E V H G N A E V H A S F F D I G G S V S A G F^{324}

'iota b toxin' sequence inserted at 2β2-2β3 loop in the recombinant PA-1:

(SEQ. ID NO: 2) ^{302} V G V S I S A G Y Q N G F T G N I T T S A G F^{324}

Page 4, paragraph 4:

The changes in the amino-acid sequence in this loop have rendered it non-toxic and imparted a dominant negative phenotype consequently inhibiting the anthrax toxin action. The mutagenesis of the PA gene in this region has cause inhibition of pore-forming ability of wild-type PA by PA-1 by defective channel formation.

The invention also provides the DNA sequence of the mutated gene encoding the recombinant protein comprising:

(SEQ. ID NO: 3) GTA GGA GTT TCA ATT TCA GCA GGG TAT CAG AAC GGC TTT ACT GGT AAT ATC ACT ACA TCT GCA GGA TTT

Page 5, paragraph 1:

(SEQ. ID NO: 4) 5'< ATT ACT AAA TCC TGC AGA TGT AGT GAT ATT ACC AGT AAA GCC GTT CTG ATA CCC TGC TGA AAT TGA AAC TCC TAC AGT ATT AGC ATC CCT ACT TGT AGA AGT ATT TTT AC<3'

Page 5, paragraph 2:

Primer 2:

(SEQ. ID NO: 5) 5'<GT GAT TAA TAA AGC TTC TAA TTC<3'

b. amplifying a portion of the PA gene encoding the mutant region of the 2β2-2β3 loop,

c. cloning the amplified fragment back in to the plasmid and inserting the plasmid into *Bacillus anthracis* for expression of the mutated gene,

d. purifying the mutant protein from the culture supernatant of *B. anthracis* followed by characterization of the expressed mutant protein,

e. checking the cytotoxicity of the expressed mutant on mammalian cells in vitro.

f. testing the inhibiting ability of the mutant protein for inhibiting the toxic activity of native PA when present at equimolar or lower concentrations,

g. assaying for the ability of the mutant protein to inhibit pore-forming ability of native PA in vitro,

h. testing the ability of the mutant protein to inhibit anthrax toxin activity in vivo on administration to in-vivo systems in equimolar ratio with wild-type PA plus LF.

CLEAN COPY OF CLAIMS 1-4

1. A novel molecule useful for anthrax toxin inhibition in vivo comprising a recombinant protein designated as PA-1, which is a dominant negative inhibitor of PA, wherein the 2β2-2β3 loop comprises amino acid residues of the amphipathic loop of the homologous toxin iota-comprising:

'iota b toxin' sequence inserted a 2β2-2β3 loop in the recombinant PA-1:

(SEQ. ID NO: 2) ^{302}V G V S I S A G Y Q N G F T G N I T T S A G F^{324}

2. The mutated gene encoding the recombinant protein with sequence of base pairs at 2β2-2β3 loop comprising:

(SEQ. ID NO: 3) GTA GGA GTT TCA ATT TCA GCA GGG TAT CAG AAC GGC TTT ACT GGT AAT ATC ACT ACA TCT GCA GGA TTT

3. The oligonucleotide primers encompassing the mutation:

Primer 1:

(SEQ. ID NO: 4) 5'< ATT ACT AAA TCC TGC AGA TGT AGT GAT ATT ACC AGT AAA GCC GTT CTG ATA CCC TGC TGA AAT TGA AAC TCC TAC AGT ATT AGC ATC CCT ACT TGT AGA AGT ATT TTT AC<3'

Primer 2:

(SEQ. ID NO: 5) 5'<GT GAT TAA TAA AGC TTC TAA TTC<3'

4. A method for developing the novel recombinant anthrax toxin inhibitor protein as claimed in claim 1, said method comprising steps of:

a. designing the oligonucleotide primers encompassing the mutation site comprising:

Primer 1:

(SEQ. ID NO: 4) 5'< ATT ACT AAA TCC TGC AGA TGT AGT GAT ATT ACC AGT AAA GCC GTT CTG ATA CCC TGC TGA AAT TGA AAC TCC TAC AGT ATT AGC ATC CCT ACT TGT AGA AGT ATT TTT AC<3'

Primer 2:

(SEQ. ID NO: 5) 5'<GT GAT TAA TAA AGC TTC TAA TTC<3'